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THE MECHANICS OF SOCIETY.

CONTRIBUTIONS TO SOCIAL PHILOSOPHY. VIII.

PRIOR to the eighteenth century, when mathematics was almost the only science known, it was customary to treat all subjects under the mathematical form. Dr. Henry More, in an elaborate work, demonstrated the immortality of the soul by a series of geometrical propositions and notations, and, as is well known, Spinoza's Ethics consists of an array of Euclidean theorems, corollaries, and scholia. In those days it was supposed that if an argument on any subject whatever could be reduced to a perfect logical or geometrical form and contained no violation of the well-learned rules of reasoning its several propositions were apodictically established.

In modern times all this is regarded as mere pedantry, and any attempt to apply mathematics to the complex phenomena of life, mind, and society is looked upon with suspicion. While all may admit that the test of exactness of any science is the degree to which its laws can be subjected to mathematical rules, it is generally denied that the laws of biology, psychology, and sociology can be thus subjected.

While I am one of those who have emphasized this truth, and justly condemned the ambitious propensity to give to such complex phenomena a greater precision than they possess, I have never denied that the goal toward which even the highest of them must ever tend is just that perfected stage at which their laws may be mathematically formulated. Moreover, these laws are capable of being roughly classified in this respect, and while some of them may lie beyond all hope of such a formulation others may have nearly reached the point at which it is possible.

The basis of this classification is the generality of the laws

themselves, and it is found that only the most general of them all are susceptible of any such treatment. The founder of sociology, long before he had proposed that name for the science, gave it the name of "Social Physics," which showed that he perceived an analogy between social phenomena and physical phenomena, and so far as his treatment of the subject is concerned, he might as well have called it social mechanics, for he at once subdivided the phenomena into static and dynamic, terms borrowed from the science of mechanics, a branch of pure mathematics, and being a mathematician himself, he must have known what the terms meant. All future studies have tended to confirm the justness and appropriateness of this classification. It is, however, only in their most general aspects that social phenomena are capable of being thus treated in the present state of the science, and it is to such general aspects that I propose to confine myself.

The word *science* has been variously defined. Etymologically it signifies, of course, simply knowledge. But it is admitted that there may be knowledge that is not science, and the most common definition of science is "methodized knowledge." I prefer a somewhat different form of expression, which may not after all differ from this in any fundamental respect. I believe that science is properly confined to an acquaintance with the laws of phenomena, using that expression in the broadest sense. All phenomena take place according to invariable laws whose manifestations are numerous and manifold. A mere knowledge of these manifestations is not science. Knowledge only becomes scientific when the uniform principle becomes known which will explain all the manifestations. This principle is the law.

But we can go a step farther back. A law is only a generalization from facts, *i. e.*, from phenomena, but these do not take place without a cause. The uniformity which makes such a generalization possible is in the cause. But a cause can be nothing else than a force. This force acts upon the material basis of phenomena and renders it *apparent*. As all force is persistent the phenomena it causes will necessarily be uniform

under the same conditions, and will change in the same way under like changes in the conditions.

As an abstract proposition all force is one, but there are a great many fields of phenomena due to as many different general conditions under which the universal force acts. It has been the custom to speak of the action of force under such different conditions as the action of so many different forces. This is at least convenient, and so long as the law of the correlation of forces is recognized it can lead to no error.

Now, it follows from this that every true science must be a domain of force; that each science must preside over some one of these various forces, and that any field of knowledge which has not been brought under the operation of some natural force is not yet a science in the proper sense of that word. The mere accumulation of facts does not constitute a science, but a successful classification of the facts recognizes the law underlying them and is, in so far, scientific. In fact, classification is always the initial step in the establishment of a science, and the more recondite workings of the force over which it presides are discovered later. We have only to look over the history of the several recognized sciences to see ample illustrations of these principles, and I cannot now stop to undertake an enumeration of them.

If, therefore, sociology is a science, it must agree with all others in this respect, and all knowledge that is not systematized according to this principle must be ruled out of the science of society. I have always maintained that sociology does constitute a science, capable of being submitted to this test, and if I have contributed anything to that science it has been in the direction of pointing out the nature of the social forces and the mode of their activity. I propose briefly to recapitulate the general results which I claim to have reached in this field of research.

In the first place the social forces are psychic. They have their seat in the mental constitution of the individual components of society. But here it is necessary to understand what the mind includes. The popular conception of mind is far too nar-

row. It embraces only the thinking faculty, or at most, that and the special senses. Now, suppose we try to define the several great groups of phenomena that are constantly appealing to us in the ascending order of their complexity, beginning with that of gravitation and rising through the radiant group of heat, light, electricity, etc., and the group of elective chemical affinities, to the vital group, including everything that relates to life but does not relate to mind; and then pass directly to the senses and the intellect. A glance is sufficient to show that a great group has been omitted. This lies between the vital group and the intellectual group. It constitutes the entire domain of *feeling*. This domain is distinct from the senses in the popular usage, for these do not necessarily involve conscious feeling at all. Those of sight and hearing are feelingless, and even that of touch, sometimes called the sense of feeling, need not involve feeling, and its value as a sense, *i. e.*, as a means of furnishing the mind with a knowledge of the nature of the objects touched, is inversely proportional to the amount of feeling. I call this *indifferent* sensation in contradistinction to feeling proper, which I call *intensive* sensation. This latter is always either pleasure or pain of whatever degree, and it would be easy to show that it is the primary form of feeling, and that the indifferent form is secondary and of far later origin. In fact intensive sensation—pleasure and pain—constitutes the simplest and earliest manifestation of the psychic faculty. This great field of phenomena—the domain of feeling—is not physical, chemical, or vital; it must therefore be psychic and belong to mind.

We thus arrive at the dual nature of mind. It has a great primary department of feeling and an equally great but secondary department of thought. The former I have called the *affective* side of mind; the latter its *perceptive* side. The affective department of mind has formed no part of the philosophy of mind. It has only been seriously treated under the head of moral philosophy, and thus chiefly for the purpose of warning against the power of the passions. It has been regarded as

something gross and impure, and wholly unworthy of a place in any scheme of philosophy.¹

But in quite recent times, under the stimulus of modern ideas of biology, the conception of the biological origin of mind has begun to work a change in the prevailing habit of thought on the subject, and psychologists are coming to recognize the feelings as a department of psychology. In sociology the least reflection reveals the immense importance of this department. Indeed it is found to constitute the true foundation upon which that science must be built, so that it may be said that "the stone that the builders refused is become the head stone of the corner." The secret of all this is that it is in the affective side of mind that the forces of society are found to lie. Feeling is a force. It is the only psychic force, and is at the same time the fundamental social force.

The particular form under which feeling manifests itself as a force is *desire*, and the social forces consist in human desires. They are true natural forces and obey all of the Newtonian laws of motion. They are either negative—desire to escape pain—or positive—desire to secure pleasure. In either case they impel the individual to action. A convenient and highly expressive synonym for desire in its widest sense is *will*, but the word must then be used in the philosophic sense of motive, and not in the popular sense of choice. Schopenhauer based his entire philosophy on this conception, and by projecting the will into the inanimate world he showed in the clearest manner the true nature of will as a simple mode of manifestation of the universal force. In identifying all forces with will he simply demonstrated that the human will is a force. From an economic point of view we may identify it with *want*, and contemplate the combined wants of mankind as constituting the social forces.

This conception is susceptible of great expansion. It really embraces the whole domain of feeling in the intensive sense, *i. e.*, as having to do with pleasure or pain. All instincts, affections and emotions range themselves under it. All the "passions of

¹ JAMES: *Principles of Psychology*, II, 9.

the soul," of which Descartes treated, all loves and hates, fears and hopes, yearnings, longings, ambitions, aspirations, and a great variety of other forms of the one principle belong to it.¹ The central idea common to them all is embodied in the two words *impulse* and *motive*, and these terms sufficiently imply the indwelling force of the will. It is that which impels and that which moves. It is the *nisus* of nature transferred from the physical to the psychic world. It is force and motion ensouled. It is the true soul.

From the standpoint of social mechanics this embodiment of psychic and social energy becomes the *dynamic agent*. The word dynamic, primarily and etymologically relates to force, but usage has sanctioned its extension to include that which force normally accomplishes, viz., motion, change. In the expression "dynamic agent," both the narrower and the broader conceptions are involved, but in most of the other applications of the word "dynamic" it is mainly restricted to the narrower sense, and may be defined as: producing movement and change as the result of force. It is thus clearly distinguished in its scope from the term *kinetic*, employed in modern physics, which relates to motion only, without connoting force. The use of the term dynamics in the sense here indicated was first made in mechanics, and constitutes a department of that science in contradistinction to statics in which the forces are conceived as in equilibrium, so that no movement results. The next science in which a dynamic department was recognized was geology, and latterly the term is being applied to other sciences. From the principles with which we set out it is clear that every true science must have both a dynamic and a static department. This has been sparingly recognized in biology, and distinctly so in economics by Dr. Patten and in sociology by Comte.²

In treating of the mechanics of society, therefore, it is of the utmost importance to understand what constitutes social statics

¹ Some attempt at an enumeration of these appetitive attributes may be found in *The Psychic Factors of Civilization*, pp. 53, 61.

² Not by Spencer, notwithstanding his work on "Social Statics."

and what social dynamics, and how these two primary departments are to be marked off, distinguished and recognized. First of all it must be insisted that the terms are not used merely as smooth expressions that have a scientific sound, or as remote analogies to those of exact science, but for what they actually mean, and in precisely the same sense that they have in pure mechanics or in solar astronomy. By this is not meant that the phenomena of society are capable of reduction to exact mathematical tests in any such degree as can be done in astronomy and physics, but merely, as already pointed out, that the highest generalizations in sociology are subject to theoretical treatment as exact as the observed phenomena of the planets or of falling bodies. It may be regarded as a sort of *pure* sociology, and it certainly has a far better sanction than either the "pure morals" of Kant or the "absolute ethics" of Spencer.

Beginning, then, with social statics, it must be defined as: social forces in equilibrium. We must then seek for cases in which social forces are in a state of equilibrium, or approximately so; for in so complex a field as society nothing absolute is to be expected when actual phenomena are under investigation. A moment's inspection shows that the social forces do not always and universally result in movement, that they conflict and collide with one another, that they choke one another, and are constantly tending to bring about a cessation of motion, *i. e.*, they tend towards the state of equilibrium. The larger masses (social groups) are first brought to rest, but within these masses there goes on a sort of molecular activity by which free paths are opened for the performance of minor operations. The general result is what may be called a social structure. In a wider sense these social *structures* may be called *institutions*. As examples of social structures proper may be mentioned the family, the clan, the tribe, the state, the church, and each and all of the innumerable voluntary associations of society. As examples of institutions may be instanced marriage, government, language, customs, ethical and conventional codes, religion, art, and even literature and science.

Society itself, which includes all the structures and institutions that may exist at any given time together with a certain vague but general psychic integration, may be regarded as a great structure in which the social forces have to a certain extent been brought into a state of equilibrium. It is only the most general aspects of the will that are thus equilibrated, and within this great social structure there are others which in advanced societies may be classified into a sort of subordinate hierarchy of structures, along with many that are more or less coördinate.

In general it may be said that society as a whole, including all its structures and institutions, both general and special, constitutes a *mechanism*. The structures are not chaotic and haphazard, but symmetrical and systematic. They conform to the universal law of evolution which creates the spheres of space and the adapted forms of organic life. Although all this is believed to go on spontaneously and to be the normal result of purely genetic causes, in the great poverty of language to express this process, it is almost necessary to resort to the language of teleology, which will convey no false implications to the well-informed. We may therefore say that society constitutes a mechanism for the production of results. Every social structure or institution exists for a purpose. It is necessary to guard against the mistake of confounding social statics with social stagnation. The social mechanism, taken as a whole, constitutes the social *order*, and social statics is simply the science of social order.

To regard social structures as mechanisms is a luminous point of view for the treatment of social mechanics. A machine, properly understood, is simply a device for reducing the forces it is designed to utilize to a state of equilibrium. Without the machine these forces would run to waste so far as the user of the machine is concerned. The machine checks their natural flow, and, temporarily at least and theoretically, equilibrates them. In other words the energy of nature is *stored* by the machine for the purpose of being utilized to far greater advantage and at the will of the user. This is clearly seen in the principle of the

valve, of the pendulum, etc. It is really one principle and underlies the working of every mechanism. But the result is not a loss but a gain; not a diminution but an immense increase of the product of these forces. Such mechanisms are of course the work of intelligent design on the part of man, but the same is true of the purely genetic mechanisms of natural evolution. A plant or an animal is a mechanism in this sense. It is an organic structure and represents a large amount of stored energy. It is a device for bringing a certain class of forces into equilibrium in order to increase the amount of work that can be accomplished with the same expenditure of energy. The social structures rest on the same principle. Man accomplishes more in society than out of it. The various organized groups produce more than the same individuals could produce if unorganized. Every institution increases the power of society to do work.

The work which any mechanism, whether physical, organic, or social, normally performs constitutes its *function*. If it is that which the mechanism was intended or adapted to do it belongs to this class. The function of a cotton mill is to make cotton goods, that of a grist-mill to make flour, etc. The function of a leaf is to transpire, that of an anther to fertilize, that of a pistil to develop seed. In animals the function of legs is to run, of wings to fly, of jaws to bite, of the stomach to digest. The function of an entire individual organism may be said to be that of protecting, nourishing, and preserving itself. That of a sexual pair or group is to reproduce its kind and continue the race. Rising to social structures we find that each has likewise its function—the particular work that it was created to perform. Society itself is organized for the protection at least of its members. Every voluntary association exists for a particular purpose which is its function. Government and the state exist for the good of society. Its protection against anti-social influences is their function. Religion and the church exist for the protection of society from assumed spiritual beings and to propitiate them. From a highly philosophical point of view they have a far deeper and more recondite function, viz., that of

antagonizing the tendency to violate the laws of nature and jeopardize the existence of the race. The moral and conventional codes have a similar function to the last named. Every ethnic custom before it passes into a mere "survival" has a purpose or function and performs it. Marriage and the family have the supreme function of continuing the race. And so on to the end of the list.

All this belongs strictly to statical sociology and shows the immense importance of the social order. But we may go a step farther. Statics is not limited merely to preservation and perpetuation. It also includes growth and multiplication. So long as the same normal function is performed by the same structure the phenomenon is statical, although the amount of the product be increased to any extent. If more spindles of the same kind are introduced into a factory whereby a greater quantity of goods is manufactured the function of its machinery is the same. If by reason of favorable conditions an organism attains an unusual growth without any physical modification of its organs, its function is still normal. If a species of plant or animal succeeds in multiplying its individuals without any change in its structure it remains the same species and its condition is technically statical. So of social structures and human institutions, no matter how great the results of their functional activity, so long as they remain the same structures and the same institutions, their study belongs to social statics.

One further step might be taken before the strict bounds of statical sociology are exceeded. It is an important fact not to be overlooked that structures are at first crude and poorly perform their functions, and that they usually continue gradually to improve in quality and attain correspondingly increased efficiency. This, too, properly belongs to statics, although it would seem to involve a true progress. Great caution, however, is required in this study of the improvement in the quality of types of structure. There is always danger of overlooking the true character of structures. They are almost always composite and consist of what may be called substructures. The

character of the function performed by the compound structure will depend upon the nature of its component structures. Any change in the nature of the functions is liable to be due to essential modifications in the substructures which may leave the compound structure to all appearances unchanged. We may therefore really be dealing with a dynamic phenomenon without knowing it. If this error be carefully guarded against, the general proposition that the perfection of identical types of structure is a statical phenomenon remains altogether valid, and we have as the broadest truth at which we have thus far arrived the law that all considerations of structure and function are statical. The investigation of structures is anatomy, that of functions is physiology, and in all sciences, including sociology, the study of both anatomy and physiology belongs to the department of statics.

We turn next to the dynamic aspect. We have seen that the dynamic agent resides in the feelings or affective department of mind, and it exerts its power through the myriad forms of appetitive desire constituting impulses, or impelling forces, and motives, or moving forces all of which may be embodied under the general term will, and regarded as making up the true soul of nature, of man, and of society. I have endeavored to show how the original and unrestrained operation of these social forces causes them to collide and antagonize one another, to check and control the movements set up, and ultimately to result in definite structures consisting of mechanisms for the equilibration of the forces and for the storage of the social energy. I have further shown that through such social structures society is enabled to systematize the work of the social forces and accomplish infinitely more than could have been accomplished without them, and that the work thus performed constitutes the function of these social structures. All this belongs to the department of social statics.

But there is always a limit to the efficiency of any fixed mechanism, and the same agencies that caused the origination and development of these structures, from a condition in which

none existed, continued to act in the same direction, which could now be none other than that of their modification and transformation into different and more efficient structures. Both the origination of structures out of the structureless condition and the modification of the type of structures already formed are dynamic phenomena. All nature is plastic and this incessant pressure of the social forces for the betterment of types of structure has resulted in an almost universal but exceedingly gradual change in these structures. The sociologist has before him the task of explaining the precise *modus operandi* of these changes. The fact to be contemplated is that while the functional effects of almost any social structure are greater than would be the effect of action without any structure, the effects of the later modified structures are greater than those of the earlier unmodified ones, and the effect of the progressive transformation of human institutions has upon the whole been that of vastly increasing their social efficiency. The same effect has attended the creation of new institutions, or the multiplication of social structures. How does this take place?

We saw that feeling was the dynamic agent, and therefore it is here certainly that we must look for the initial impetus of all dynamic phenomena. We also saw that function (nutrition, reproduction, growth, multiplication, qualitative perfectionment) is essentially statical, and therefore it is useless to look in this direction. If, however, we examine the phenomena of function we shall see that they are all *indirect* in the sense of not following immediately upon the act that produces them as the effect of an efficient cause. The acts are not *causæ efficientes* but only *causæ sine qua non*. In unintelligent beings it is not to be supposed that the agents that perform the acts that produce functional effects have any conception of the nature of such effects. The animal does not eat in order to nourish its body, but to satisfy hunger, nor does it perform the reproductive act in order to continue its race, but to gratify an instinct. In the human race, so far as man's animal nature is concerned, the case is scarcely different, and the most rational communities would forth-

with disappear but for the impulses that indirectly lead to their preservation. These functional results are undesired. They are automatic. The will does not enter into their production. This of itself explains their statical character. Whatever is dynamic must be desired, must be due to motive, must be a product of will power. The act itself of satisfying desire is not dynamic and if no effort were required there could be no modification of structure. It is precisely because, in the great majority of cases, effort is necessary that transformation takes place. From the very outset there have been obstacles to the satisfaction of desire, to remove which has required greater or less effort, and it is this effort that has resulted in change.

The fact to be noted at this point is that the effect (removal of obstacles) is not, like the functional effects hitherto considered, indirect and remote, but is direct and immediate. The effort is a true efficient cause and the effect is a purely natural physical consequence of the activity. In the animal world this effect is mainly subjective. It transforms the organism, modifies organs, multiplies structures, and creates new varieties, species, genera, and even families and classes. In man it does this too, but only to a limited extent. Here the principal effects are modifications of the environment to adapt it to the organs and faculties that he already possesses, and the degree to which this takes place is proportional to his superiority over the animal. It is a measure of his psychic development, and especially of his intellectual development. The removal of obstacles to the satisfaction of desire is the underlying cause of all social progress. It transforms the social environment. It modifies existing social structures and originates new ones. It establishes institutions. It resists the repressing tendencies of obsolescent customs and codes. It inaugurates reforms, which are at bottom a sort of social exuviation. If old, hardened structures prove too obdurate, it results at length in revolution. In short it constitutes the dynamic process of society.

Social progress is either genetic or telic. Progress below the human plane is altogether genetic and is called development.

In the early human stages it is mainly genetic, but begins to be telic. In the later stages it is chiefly telic. The transition from genetic to telic progress is wholly due and exactly proportional to the development of the intellectual faculty. The intellectual method is essentially telic. The intellect was developed as an aid to the will for the sole purpose of securing the more complete satisfaction of desire. It enables man to obtain by an indirect method what he could not obtain by a direct method. Through it satisfactions are multiplied and life correspondingly enriched.

On the subhuman plane the organic advances that nature accomplishes all take place according to the genetic principle. They constitute what is commonly understood as development or organic evolution. Certain writers, however, have used the term *genesis* in this, or some more or less modified sense. When we take in human evolution it becomes evident that it includes something more than is involved in the evolution of irrational beings. The moment we rise to the social sphere we encounter the telic aspect of the subject. It is still development or evolution, but a new principle, radically different from the genetic, has now been introduced, and in all the higher forms of social progress it assumes the leading rôle. Obviously, therefore, the sociologist at least demands a terminology that shall clearly indicate this important distinction. That much of social progress consists of simple genesis there is no doubt, but the greater part of human evolution is not genesis. A term is wanted to describe this major part of social evolution. So pressing is this need that I feel justified in striving to find and introduce such a term. We already have the word teleology, formerly employed exclusively in a theological sense, but which I long ago showed to be applicable to human activity.¹ From this we have the adjective *teleological*, and these might suffice for the purpose. But there is a shorter adjective form *telic* which is preferable to teleological, and possesses the advantage of being converted into the name of a science, *telics*, as proposed by Dr. Small. These two words may be conveniently set over

¹*Dynamic Sociology*, Vol. I, pp. 28, 29.

against *genetic* and genetics, thus greatly facilitating the expression of a large class of ideas with which the social philosopher must constantly deal. The only serious lack, then, is a similar antithetical term to be set over against *genesis*, to denote the distinctively social process which results from the application of the indirect, intellectual, or telic method. In order to supply such a term I propose to revive the Greek form *telesis*,¹ giving to it the required meaning.

There are two kinds of telic progress, or telesis, individual and collective. The former is the principal kind thus far employed. The latter is as yet so rare as to be almost theoretical. Society itself must be looked upon as mainly unconscious. Its operations are the result of the combined activities of its individual members. But the individual is conscious and seeks his ends by the aid of all the faculties he possesses. In societies at all advanced the individual units possess a developed intellectual faculty which they employ in precisely the same way that non-intellectual beings employ their unaided conative faculties, only with vastly greater results. This mind power acting in conjunction with the

¹ Gr. *τέλεσις*. This word was little used by the Greek philosophers and writers, and only, so far as I am aware, in the primary sense of the verb *τελέω*, to complete, fulfill, accomplish. Still, there seems no good reason why it may not take on not only all the meanings of that verb but also all those of the noun, *τέλος*, from which all words containing this root are derived. That word also meant primarily an end accomplished, but it was made to serve in a great number of cognate significations. Plato used it in the sense of an end of action or "final cause," and from this have sprung all the derivatives employed by philosophers. *Teleology* was not used by the Greeks, but we find *telic* (*τελικός*) in the various senses of *τέλος*, and especially used by the Stoics in an ethical sense, *final*. Mediæval and modern writers have always felt justified in employing any of the derivatives of *τέλος* in the Platonic sense. The adjective *τελεστικός* (fit for finishing) was used in religious ceremonies in connection with the office of consecration or initiation, where it may be rendered initiative, or mystical, and some modern mystics, as Cudworth have revived it in that sense. An Italian writer, Sig. L. Ferrarese, in a volume entitled, "Saggio di una nuova classificazione delle scienze," 1828, has employed the word *teletics* in a sense similar to that in which Dr. Small and myself have used *telics*. The latter would seem to be the preferable form. I am indebted for the reference to Ferrarese's work to Professor George E. Vincent of The University of Chicago, but I have thus far been unable to consult the work itself. I am not aware that the word *telesis* has hitherto been revived in any modern language.

will power has worked the same class of transformations that the latter accomplished alone, only it has done this on a much larger scale. This is individual *telesis*. It constitutes almost the only social progress that has thus far taken place.

The intellect is not itself a force, it is only a guide. Just as the desires collectively considered constitute the dynamic agent, *i. e.*, represent the forces to be dealt with in the mechanics of society, so the intellect constitutes the directive agent, and has for its function to guide the will into safe and effective channels of action. As the object is always to avoid the obstacles to the satisfaction of desire, the nature of this guidance must be to find paths, as it were, around these obstacles, and therefore its method is necessarily indirect. While the psychologic character of this indirection is always the same it appears under two quite different forms. Which of these forms it will assume depends upon the nature of the obstacles with which it has to deal. The two principal classes into which the objects of the impinging environment naturally fall are the animate and the inanimate, or, from the present point of view they may better be called the sentient and the insentient. Intellectual indirection practiced on sentient creatures is always in the nature of *deception*. The advantage of the agent is the opposite of that of the sentient object, or at least, is so regarded by the latter. The purpose is to circumvent the will of the creature that constitutes the obstacle. Both the agent and the victim may be either animal or man. There are therefore four possible cases: (1) animal acting on animal; (2) animal acting on man; (3) man acting on animal; and (4) man acting on man. But as the victim is usually inferior intellectually to the agent, the second case is rare or wanting, and in the first and fourth there is generally more or less inequality between the exploiting and the exploited animal or man. From the sociological point of view only the third and fourth cases, *i. e.*, those in which man is the agent, are involved. I surely need not dwell upon the familiar phenomena of the exploitation by man both of the animal world and of other men.

The psychological process involved has received a number

of names according to the degree of intellectual power called forth and to the nature of the being acted upon, but there is not the slightest difference in the essential quality of the mental act. We may distinguish five ascending grades of this act which will be sufficient for the present purpose. These are, (1) low or ordinary cunning, largely aided in animals by hereditary instincts; (2) sagacity, such as is manifested by the most intelligent domestic animals, and also by the less developed human beings; (3) shrewdness, best exemplified in business transactions; (4) strategy, as practiced in war; and (5) diplomacy, characterizing the intercourse of nations with one another. This group of intellectual actions, since it involves more or less pain, temporary at least, in the feeling beings exploited, represents the *moral* aspect of the principle under discussion and may be called *moral indirection*.

The other form of indirection, viz., that in which the intellect, or directive agent deals with inanimate or insentient objects forming obstacles to the satisfaction of desire, appears only to a limited degree at any stage below the human. At least animals exercise it only by avoiding such obstacles, and never by modifying them. But man, at all stages at which we know him, and doubtless almost from the beginning of his strictly human career, has always and everywhere sought with more or less success to modify his environment and to adapt it more completely to his needs. The principle involved is in all respects the same as that by which he has thwarted the will of animals and his fellow men. In a certain sense he may be said to be engaged in deceiving nature or exploiting the inorganic world. In circumventing the will of animals and men he is making use of all the knowledge he possesses of psychic forces. In modifying the inanimate environment he in like manner makes use of his knowledge of physical forces. It is the same faculty employed in the same way only on another class of objects.

The objects being inanimate and insentient their manipulation can cause no pain and therefore no moral considerations are involved. Such action is innocent or *unmoral* (*amoral* or *anethical*),

and this form of indirection may, in contradistinction to the moral indirection already considered be called *physical indirection*. So, too, the terms that are applied to the various grades of moral indirection—cunning, sagacity, shrewdness, strategy, diplomacy—are not generally applied to physical indirection, although there are many etymological usages that acutely suggest the identity of principle. Cunning is often a synonym of dexterity. Art has the two derivatives, artful and artificial. From craft comes crafty. A machination becomes a machine. The usual generic term for this exercise of the intellectual faculty is *ingenuity*. An ingenious act is an invention. The product of invention is art. Art is the basis of culture and the measure of civilization. All art is thus telic. It consists in the utilization of the materials and forces of nature. As supplemented by scientific discovery and crystallized in machinery, it constitutes the great mainspring of human progress. As already remarked, the greater part of all that has been thus far achieved has been the work of strictly egoistic individual action. The vast dynamic results have been the immediate and direct effects of this action upon the impinging environment. It was not contemplated by the individual, and so far as he is concerned, it was incidental and unintended. Still it was the necessary result of his effort to satisfy desire.

But, as has also been hinted, this individual teleosis is not all that is to be expected from the human race, endowed as it is with a highly developed, and as I believe, Galton and Kidd to the contrary notwithstanding, still rapidly developing intellectual faculty. There is possible another step resulting in a social or *collective teleosis*. The individual has grappled with physical forces and with psychic forces and has laid them tribute to his will. It remains for society in its collective capacity to grapple with the social forces and to render them in like manner subject to the social will. But to do this society must wake to consciousness even as the individual has done. It must develop a social intellect capable of exercising both the forms of indirection described. Society must become cunning, shrewd, strategic and diplomatic in compassing its own interests, but especially it must

acquire ingenuity and inventiveness in dealing with the heterogeneous mass of human beings out of which it is constituted, all of whom, however, are actuated in every movement by fixed laws that it must first discover. This social intellect must imitate in all respects the individual intellect. It must even be egoistic, since its own interests are also those of its individual components, and therefore there is no possibility of injury except through failure to secure those interests.

But these propositions are too general. Let us descend to something more specific. The general result of a careful study of the alleged "social organism" results in the conclusion that the only true basis of comparison between society and an animal organism is psychical. In this comparison it is admitted even by Spencer that the true social homologue of the animal brain is to be found in human government. The social intellect, if there is to be one, must be located in the governing body of society. That such a thing is possible is obvious to any one who is capable of divesting himself of popular prejudices.

Of course, as already remarked, this is largely theoretical in the present state of society, but nothing is clearer than that the legislative body of any given state may exercise intelligence. It is supposed to do this now, and only misarchists will deny that it generally does so, albeit an intelligence of a rather low order, as ought to be expected from a body that does not pretend to do more than represent the intelligence of its constituents, including the lowest as well as the highest, *i. e.*, a body representing approximately the average social intelligence. In a more highly developed community the degree of intelligence applied to legislation will necessarily be correspondingly greater, and, in theory at least, it may ultimately reach the level attained in the present state of society by those individuals most highly developed intellectually. As soon as the social brain shall have attained this stage of development it will begin to employ the indirect method so characteristic of the individual. It will not only display shrewdness and diplomacy, but it will also display ingenuity. A science of government will be established, based

on an investigation and discovery of the laws controlling social phenomena. This, as in the physical sciences, will constitute the foundation, for a genuine process of social invention. The laws made by governments are totally different from the laws of nature. They are simply applications of them. Properly viewed they are, when effective, nothing more nor less than so many inventions in the domain of the social forces. Legislation, in so far as it is scientific, is invention.

It is of course easy to see how widely this ideal legislation differs from most of the actual legislation. In the latter the intellectual method of indirection is rarely employed. Most laws are mandatory or prohibitory, *i. e.*, only brute force is employed, the same as that by which irrational creatures strive to attain their ends. The inventive method consists in devising mechanical adjustments such as shall direct the forces to be controlled into paths foreseen to be advantageous. As the forces are indestructible and ever pressing, and as they will necessarily follow the lines of least resistance, they must flow along these useful paths foreordained by human ingenuity. Man would never have established art by attempting to compel physical forces to act this way or that. He not only abandons brute force but he ceases to use his own force at all and applies himself to leading, or, as it were, *attracting* the natural forces into their prescribed courses. And when the mechanics of society shall have been made in like manner the prolonged and successful study of the intelligent legislator, this method will completely supersede the present crude, unscientific and largely ineffective method, and the results for society will compare with those now attained as the highest industrial art compares with the crudest empiricism. I have called this method Attractive Legislation, the further consideration of which must be deferred to the final paper of this series.

We thus perceive that the mechanics of society naturally falls under the two general groups of social statics and social dynamics. The first of these groups need not for present purposes be subdivided, but the second primarily dichotomizes into

what, for the sake of uniform terminology, may be called social *genetics* and social *telics*; furthermore, this last in turn assumes the two forms of individual telics and collective telics. These are the several scientific aspects of the subject. The corresponding processes which it is the purpose of these branches of the science of social dynamics respectively to study are: (1) social genesis; (2) individual telesis; and (3) collective telesis.

The entire scheme of the Mechanics of Society may therefore be formulated as follows :

Social Mechanics, treating of the Social Forces.

Social Statics, treating of Social Order.

Social Dynamics, treating of Social Progress.

Social Genetics, treating of Social Genesis.

Social Telics, treating of Social Telesis.

Individual Telics, treating of Individual Telesis.

Collective Telics, treating of Collective Telesis.

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